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Listing of Claims

1. (currently amended) In a vehicle having a powertrain and an anti-lock braking system (ABS), a method of controlling the ABS, comprising:

accumulating responses of the ABS to a series of sudden braking events;

correlating the ABS responses to determining one or more natural vibration frequencies of the vehicle; and,

selecting ~~a nominal~~ an ABS response to a brake request based on the correlated ABS responses; and, altering the selected ABS response in order to avoid exciting the powertrain at the one or more ~~determined~~ natural vibration frequencies.

2. (currently amended) The method of claim 1, ~~comprising wherein the correlating step includes of determining which of the accumulated responses excite the powertrain at the one or more determined natural frequencies may be excited by the nominal ABS response.~~

3. (currently amended) The method of claim 2, wherein the accumulating step includes storing the ABS responses in a memory on-board the vehicle ~~of determining which of the one or more natural frequencies may be excited by the nominal ABS response comprises correlating a set of normally appropriate responses with the determined natural frequencies.~~

4. (currently amended) The method of claim 1, wherein the correlating step includes determining which of the accumulated ABS responses produces reactive torque in the powertrain at

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frequencies that are near the one or more natural frequencies comprising the step of determining whether the selected nominal ABS response will excite one of the determined natural frequencies.

5. (currently amended) The method of claim 1, wherein the selecting step includes selecting a nominal ABS response and altering the nominal ABS response by ~~step comprises~~ delaying the nominal ABS response for a selected period of time.

6. (currently amended) The method of claim 1, wherein the altering selecting step includes selecting a nominal ABS response and ~~step comprises~~ altering the nominal ABS response by accelerating the nominal ABS response.

7. (currently amended) The method of claim ~~1~~ 6, wherein the nominal ABS response comprises pulsing brakes on the vehicle and the altering step comprises altering the rate at which the brakes are pulsed.

8. (currently amended) A method of controlling an anti-lock braking system (ABS) to avoid exciting a natural vibration frequency of a vehicle, comprising:

determining the response of the ABS to a series of sudden braking events;

developing a set of vehicle natural frequencies that may be excited by the ABS using the response of the ABS to the series of braking events;

selecting an ABS response to a driving event requiring actuation of the ABS;

determining whether the selected ABS response may excite any

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of the frequencies in the developed set; and,

altering the selected ABS response to avoid exciting any of the frequencies in the developed set.

9. (original) The method of claim 8, wherein the developing step is performed by:

determining the natural frequencies of the vehicle; and,

selecting the determined natural frequencies that are excited by the ABS.

10. (currently amended) The method of claim 9, wherein the natural frequencies are selected by correlating the ABS responses with the determined natural frequencies to thereby establish which of the natural frequencies are excited by the ~~plurality of~~ ABS responses.

11. (currently amended) The method of claim 8, further comprising the step of storing the response of the ABS to the series of sudden braking events ~~set of vehicle natural frequencies in a memory, and wherein the determining step comprises comparing the selected ABS response with each of the vehicle natural frequencies stored in the memory.~~

12. (original) The method of claim 8, wherein the altering step includes delaying the execution of the selected ABS response.

13. (original) The method of claim 8, wherein the altering step comprises accelerating the execution of the selected ABS response.

14. (original) The method of claim 8, wherein the altering step comprises altering the rate at which the ABS pulses the brakes of

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the vehicle.

15. (currently amended) A system for controlling an anti-lock braking system (ABS) to avoid exciting a natural vibration frequency of a vehicle, comprising:

computer memory ~~having for storing a stored set of vehicle natural frequencies that may be excited by the ABS, and for storing a set of possible~~ ABS responses to past sudden braking events ~~driving conditions~~ requiring actuation of the vehicle's ABS; and,

a set of programmed instructions for comparing a proposed ABS response with the ABS responses stored in the memory ~~each of the vehicle natural frequencies stored in the memory~~ and for altering the proposed response based on the comparison to avoid an ABS responsive that may excite a vehicle natural frequency.

16. (currently amended) The system of claim 15, wherein the programmed instructions include instructions for altering accelerating the proposed ABS response.

17. (currently amended) The system of claim 15, including a data input device for transferring ~~the vehicle natural frequencies to the stored in the memory to the~~ ABS.

18. (new) A method of controlling an anti-lock braking system (ABS) to avoid exciting a natural vibration frequency of a vehicle, comprising:

storing responses of the ABS to a series of past sudden braking events that resulted in exciting a vehicle natural frequency;

selecting a proposed ABS response to a driving event requiring actuation of the ABS; and,

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altering the proposed ABS response based on the stored ABS responses.

19. (new) The method of claim 18, wherein the ABS responses to the series of past braking events are stored in a memory on-board the vehicle.

20. (new) The method of claim 18, wherein the storing step includes storing a plurality of combinations of brake pressures and braking pulsing frequencies.

21. (new) The method of claim 20, including the step of correlating responses of the ABS to the series of past braking events with natural vehicle frequencies.

22. (new) The method of claim 18, including the step of measuring the response of the ABS to a series of braking events.

23. (new) The method of claim 22, wherein the measuring step includes measuring brake pressures and braking pulsing frequencies.

24. (new) The method of claim 23, wherein altering the proposed ABS response includes increasing the brake pulsing frequency.